May 10, 2006

Dr. Scott A. Masten
Director
Office of Chemical Nomination and Selection
NIEHS/NTP
111 T. W. Alexander Drive
P. O. Box 12233
Research Triangle Park, North Carolina 27709

Re: Federal Register Notice Vol. 71, No. 69, April 11, 2006 – Nomination of Phenoxyethyl Acrylate

Dear Dr. Masten:

The American Chemistry Council, on behalf of its Specialty Acrylate and Methacrylate Panel (SAM) is pleased to submit data on the applications and exposure to workers and consumers of phenoxyethyl acrylate (PEA). Sartomer Company, Exton, Pennsylvania is the sole U. S. producer of PEA. This submittal is being made as part of the docket in relation to the NTP's request for comments announced in the April 11, 2006 Federal Register, 71 FR 18341.

As noted in the attachment, PEA has a low toxicity and is rapidly cured. There is minimal worker exposure since the processes that use PEA are fully automated. Additionally, there is little or no consumer exposure because PEA is used only in industrial settings. When PEA is incorporated into a consumer product, it is either incorporated as part of a higher molecular weight polymer or cross-linked (cured) as part of the final product. Either process acts to substantially reduce the reactivity of any residual PEA, and reduces the likelihood of irritation of health effects. Citations to the studies referenced can be supplied on request.

Even though the National Toxicology Program (NTP) has recommended deferring testing pending submission of data through the Extended HPV (EHPV) program, the Panel urges NTP to remove PEA for its list of chemicals for testing.

If you have any questions or comments, please contact me directly at 703-741-5623 or e-mail me at Marian_Stanley@americanchemistry.com. I am available to supply supplemental technical information as well.

Sincerely,

Marian K. Stanley

Marian K. Stanley
Senior Director, CHEMSTAR
Manager, SAM Panel

CC: M. Waite, Sartomer
Attachment: Phenoxyethyl Acrylate Exposure and Use

Phenoxyethyl Acrylate Exposure and Use
May 10, 2006
Submittal to NIEHS

Phenoxyethyl acrylate (PEA) is a monofunctional monomer that is used primarily as a diluent in formulations that are cured by ultraviolet light. As with most other acrylates, PEA is very low in acute toxicity. It has been demonstrated to be non-irritating to the eyes and skin and not toxic by ingestion and skin absorption (LD50 values >2000 mg/kg). PEA's extremely low vapor pressure allows for ease of use without posing an inhalation hazard. Additionally, an inhalation study performed by Union Carbide indicated that PEA did not pose any deaths or significant adverse effects to animals subjected to PEA for eight hours. This study reinforces data demonstrating the low toxicity of this compound.

PEA and most other acrylates are used only in an industrial setting or in a research facility. Employees in both sectors receive special training before they handle acrylates and other chemicals. Employees are trained to handle PEA with gloves and other protective equipment that prevents contact with the compound. Suppliers of PEA provide safe handling information to purchasers of this product. There are also training tools available from industry organizations, such as RadTech North America.

As indicated above, PEA is a monofunctional monomer that is used primarily as a diluent in formulations that are cured by ultraviolet light. This curing process is an environmentally-efficient and environmentally-friendly one in which 100% of the formulation is cured without the use of solvents or large amounts of heat or energy. This solvent-free process virtually eliminates the emission of volatile organic compounds (VOCs). PEA is an industrial chemical and used only in industrial settings. There is no documented or known consumer use of PEA.

Additionally, there is little to no consumer exposure from PEA. When PEA is incorporated into a consumer product, it is either incorporated as part of a higher molecular weight polymer or cross-linked (cured) as part of the final product. Either process acts to substantially reduce the reactivity of any residual PEA, and reduces the likelihood of irritation of health effects.

In industry, the major end uses of phenoxyethyl acrylate are formulations for screen print inks, various coatings, and adhesives for the production of digital video disks (DVDs). Applications and uses of PEA are described below.

Major Market	Applications	Volume (lbs)	Application Method
Adhesives	DVD Adhesives	808,800	Spin Coating
Ink	Screen	1,518,460	Rotary Screen printing
Coatings	Wood, Metal, Vinyl	93,000	Roll Coated

Screen Printing

Screen printing is arguably the most versatile of all printing processes. It can be used to print on a wide variety of substrates, including paper, paperboard, plastics, glass, metals, fabrics, and many other materials. including paper, plastics, glass, metals, nylon and cotton. Some common products from the screen printing industry include posters, labels, decals, signage, and electronic circuit boards. The advantage of screen printing over other print processes is that the press can print on substrates of any shape, thickness and size.

A significant characteristic of screen printing is that a greater thickness of the ink can be applied to the substrate than is possible with other printing techniques. This allows for effects that are not possible using other printing methods. Because of the simplicity of the application process, a wider range of inks and dyes are available for use in screen printing than for use in any other printing process.

Screen printing with UV inks is typically done using an automated rotary screen printing press. On this press the ink is automatically screen pressed on to the product and a conveyor belt carries the item into the through the UV curing system. The UV inks are instantly cured (they go from liquid to solid instaneously) under the UV light source.

Since this process is automated, employee contact is expected to be minimal. Filling of reservoirs is the most common area where employee and liquid ink or coating are in contact. The use of safe handling practices will help minimize or prevent worker exposure.

Spin Coatings

Spin coating is used for many applications where relatively flat substrates or objects are coated with thin layers of material. UV coatings are automatically deposited onto the surface and spun-off to leave a uniform layer and then is passed under UV lights and cured. This coating method is totally enclosed and coating is continually recycled. Some technologies that depend heavily on high quality spin coated layers are:

- Photoresist for defining patterns in microcircuit fabrication.
- Dielectric/insulating layers for microcircuit fabrication – polymers, SOG, SiLK
- Magnetic disk coatings - magnetic particle suspensions, head lubricants
- Flat screen display coatings. - Antireflection coatings, conductive oxide
- Compact Disks – DVD, CD ROM
- Television tube phosphor and antireflection coatings.

This process is fully automated and employee contact is expected to be minimal. Filling of injector reservoirs is the most common area where employee and liquid ink or coating may be in contact. The use of safe handling practices will help minimize or prevent worker exposure.

Roll Coatings

Roll Coating is the process of applying a coating to a flat substrate by passing it between rollers. Coating is applied by one or more auxiliary rolls onto an application roll, which rolls across the conveyed flat work. The applied coating is then passed under UV lights and cured to a solid coating.

Since this process is automated, employee contact is expected to be minimal. Filling of reservoirs is the most common area where employee and liquid ink or coating are in contact. The use of safe handling practices will help minimize or prevent worker exposure.